

AUTOMATIC-BIAS AMPLIFIER CIRCUIT

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ABSTRACT

An automatic-bias amplifier circuit includes an amplifier having an input, an output, and a signal path between the input and output. A power detector is coupled for sampling the power of a signal passed on the signal path. The point of coupling may be the output and/or at one or more internal nodes of the amplifier. The power detector outputs an analog voltage signal reflective of the power of the signal to a bias circuit. The bias circuit causes the amplifier to draw a quiescent current, from a fixed level DC power supply, that varies in proportion to the analog voltage signal. Accordingly, the power consumption of the amplifier is optimized for all output power levels of the amplifier, while maintaining a desired degree of linearity. The automatic-bias amplifier circuit may be used in a wireless radio frequency communications device, e.g., a cellular phone.